

3.18 SOCIO-ECONOMICS

3.18.1 Affected Environment

The assessment area encompasses seven hydrographic basins or regions and is located within portions of Humboldt, Pershing, Washoe, and Churchill counties. Humboldt County contains six PVAs. Pershing County contains two KGRAs and five PVAs. Washoe and Churchill Counties contain two KGRAs each. One KGRA and two PVAs span a portion of more than one county. Multiple pending lease application sites are located in all four counties. The potential exists for each of these counties to experience socio-economic effects as a result of geothermal leasing. The principal economic activities conducted on these resource lands are recreation, agriculture, and mining.³²

3.18.1.1 Humboldt County

Portions of hydrographic regions within the assessment area that are located in Humboldt County include the Northwest Region (1), the Black Rock Region (2), the Humboldt River Basin (4), and the Central Region (10). Humboldt County is the fourth largest of 17 counties in the state of Nevada, encompassing a total area of approximately 9,700 square miles. The county is rural and sparsely populated. The 2000 estimated population for Humboldt County was 18,149 with a population density of 1.87 persons per square mile.³³ Winnemucca, the only incorporated city in the county, had a 2000 population estimate of 8,884 constituting nearly half of the county's population.³⁴

The Federal government represents a significant presence in the county. Almost 80 percent of the county's 6,210,560 acres (4,964,568 acres) are under Federal ownership. Federal Payments in Lieu of Taxes to the county in fiscal year 2002 amounted to approximately \$750,000.

The total personal income reported for Humboldt County in 2000 was nearly \$410 million.³⁵ Total personal income includes earnings by work place, personal contributions for social insurance, adjustments for residence, dividends, interest, rent, and transfer payments. Earnings by work place were estimated at \$323.6 million, which represented nearly 80 percent of the total income for the county. Table 3.18.1 shows earnings by work place and employment by major industrial sectors for Humboldt County in 2000. Per capita personal income for Humboldt County was estimated at \$25,665 in 2000. This per capita personal income ranked fifth in the state making up approximately 87 percent of the state average of \$29,506 and 87 percent of the national average of \$29,469.

³² U.S. Department of the Interior, Bureau of Land Management. Sonoma-Gerlach and Paradise-Denio Management Framework Revised Plan Amendment and Draft EIS. August 2000 (unpublished).

³³ Nevada State Demographer's Office. Nevada County Population Estimates July 1, 1986 to July 1, 2000. February 27, 2001.

³⁴ U.S. Department of the Interior, Bureau of Land Management. Sonoma-Gerlach and Paradise-Denio Management Framework Revised Plan Amendment and Draft EIS. August 2000 (unpublished).

³⁵ Ibid.

Total employment for Humboldt County in 2000 was estimated at 9,836 jobs. The mining industry was the largest income producer generating \$93.4 million in income. The mining industry made up nearly 30 percent of the income and 15 percent of employment in Humboldt County. The services industry was the largest employer, making up 22.5 percent of employment but only 13.3 percent of income.³⁶

Humboldt County unemployment was reported for the fourth quarter of 2001 at 350 persons, for an unemployment rate of 5.1 percent. This compares with data for the fourth quarter of 2000, which indicates 340 people unemployed and an unemployment rate of 4.6 percent.

**TABLE 3.18.1
HUMBOLDT COUNTY EARNINGS AND EMPLOYMENT
BY MAJOR INDUSTRY (2000)**

Industrial Sector	Earnings		Employment	
	Total (\$)	Percent of Total	Number of Jobs	Percent of Total
Agriculture	13,979,000	4.3	602	6.1
Agriculture Services	2,399,000	0.7	238	2.4
Mining	93,444,000	28.9	1,472	15.0
Construction	16,918,000	5.2	534	5.4
Manufacturing	12,771,000	3.9	347	3.5
Transportation and Public Utilities	34,860,000	10.8	655	6.7
Wholesale Trade	9,258,000	2.9	235	2.4
Retail Trade	30,613,000	9.5	1,687	17.2
Finance, Insurance, and Real Estate	7,020,000	2.2	437	4.4
Services	43,128,000	13.3	2,209	22.5
Government	59,199,000	18.3	1,420	14.4
Total	323,589,000	100.0	9,836	100.0

Note: Earnings include wages and salaries, other labor income, and proprietor income. Earnings represent the principal component of total income, which is comprised of adjustments for residence, dividends, interest, rent and transfer payments less personal contributions for social insurance.

Source: U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System, May 2002.

³⁶ Ibid.

3.18.1.2 Pershing County

Portions of hydrographic regions within the assessment area that are located in Pershing County include the Black Rock Region (2), the Humboldt River Basin (4), the West Central Region (5), the Truckee River Basin (6), the Carson River Basin (8), and the Central Region (10). Pershing County is the eighth largest county in the state, encompassing approximately 6,030 square miles. Pershing County, like Humboldt County, is rural and sparsely populated.³⁷ The estimated population for Pershing County in 2000 was 7,458 (Nevada State Demographer's Office 2001) with a population density of 1.2 persons per square mile.³⁸ Lovelock, the only incorporated city in Pershing County, had an estimated population of 2,772 making up 37 percent of the county's total population.

Much of the land within the county is public land managed by the Federal government. Approximately 76 percent of the county's 3,859,840 acres (2,929,129 million acres) are under Federal ownership. The public land includes 2,909,949 acres managed by the BLM and 19,180 acres administered by the Bureau of Reclamation. Federal Payments in Lieu of Taxes to the county in fiscal year 2002 amounted to approximately \$489,000.

The total personal income reported for Pershing County in 2000 was nearly \$112 million.³⁹ Total personal income includes earnings by work place, personal contributions for social insurance, adjustments for residence, dividends, interest, rent, and transfer payments. Earnings by work place were estimated at \$83.2 million and represented 74 percent of the total income for the county. Table 3.18.2 shows earnings by work place and employment by major industrial sectors for Pershing County in 2000. Per capita personal income for the county was estimated at \$16,810 in 2000. This per capita personal income ranked 17th or last in the state making up only 57 percent of the state and national average of \$29,506 and \$29,469, respectively.

Total employment for Pershing County in 2000 was estimated at 2,666 jobs. The mining industry was the largest income producer generating \$34.7 million. The mining industry made up nearly 42 percent of the income and 25 percent of employment in Pershing County. Government was the second largest income producer generating \$26.6 million and making up 25 percent of employment.

Pershing County unemployment was reported for the fourth quarter of 2001 at 90 persons, for an unemployment rate of 4.6 percent. This compares with data for the fourth quarter of 2000, which indicates 80 people unemployed and an unemployment rate of 3.8 percent.

³⁷ Ibid.

³⁸ Nevada State Demographer's Office. Nevada County Population Estimates July 1, 1986 to July 1, 2000. February 27, 2001.

³⁹ U.S. Department of Commerce, Bureau of Economic Analysis. Regional Economic Information System. May 6, 2002.

**TABLE 3.18.2
PERSHING COUNTY EARNINGS AND EMPLOYMENT
BY MAJOR INDUSTRY (2000)**

Industrial Sector	Earnings		Employment	
	Total (\$)	Percent of Total	Number of Jobs	Percent of Total
Agriculture	3,902,000	4.6	312	11.7
Agriculture Services	N/A*	N/A*	N/A*	N/A*
Mining	34,691,000	41.7	677	25.4
Construction	1,121,000	1.3	42	1.6
Manufacturing	1,419,000	1.7	65	2.4
Transportation and Public Utilities	4,233,000	5.1	59	2.2
Wholesale Trade	430,000	0.5	14	0.5
Retail Trade	6,013,000	7.2	406	15.2
Finance, Insurance, and Real Estate	N/A*	N/A*	N/A*	N/A*
Services	3,823,000	4.6	275	10.3
Government	26,595,000	32.0	678	25.4
Total	83,196,000	100.0	2,666	100.0

*Values not available – figures not provided in source to avoid disclosure of confidential information, however the estimates for this item were included in the totals.

Note: Earnings include wages and salaries, other labor income, and proprietor income. Earnings represent the principal component of total income, which is comprised of adjustments for residence, dividends, interest, rent and transfer payments less personal contributions for social insurance.

Source: U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System, May 2002.

3.18.1.3 Washoe County

Portions of hydrographic regions within the assessment area that are located in Washoe County include the Northwest Region (1), the Black Rock Region (2), the Humboldt River Basin (4), the West Central Region (5), the Truckee River Basin (6), and the Carson River Basin (8). Washoe County is the seventh largest of 17 counties in the state of Nevada, encompassing a total area of approximately 6,600 square miles. The majority of the county is rural and sparsely populated however a large portion of the population is concentrated in the southern part of the county in the

cities of Reno and Sparks.⁴⁰ The 2000 estimated population for Washoe County was 333,566 with a population density of 50.5 persons per square mile. The incorporated cities of Reno and Sparks had a 2000 population estimate of 182,818 and 66,240, respectively, together constituting nearly 75 percent of the county's population.⁴¹

Approximately 70 percent of the county's 4,229,120 acres (approximately 2.9 million acres) are under Federal ownership. The BLM manages approximately 2.6 million acres; the USFWS, Forest Service, and Bureau of Reclamation manage the balance. Federal Payments in Lieu of Taxes to the county in fiscal year 2002 amounted to approximately \$1.6 million, the highest in the state.

The total personal income reported for Washoe County in 2000 was nearly \$11.9 billion.⁴² Total personal income includes earnings by work place, personal contributions for social insurance, adjustments for residence, dividends, interest, rent, and transfer payments. Earnings by work place were estimated at \$8.4 billion and represented 70 percent of the total personal income for the county. Table 3.18.3 shows earnings by work place and employment by major industrial sectors for Washoe County in 2000. Per capita personal income for the county was estimated at \$34,879 in 2000. This per capita personal income ranked second in the state and was approximately \$5,400 greater than the state and national average of \$29,506 and \$29,469, respectively.

Total employment for Washoe County in 2000 was estimated at 240,785 jobs. The services industry was the largest income producer generating nearly \$3 billion constituting 35 percent of the total personal income for the county. The services industry was also the largest employer constituting nearly 39 percent of employment in Washoe County. Government was the second largest income producer generating nearly \$1.2 billion in personal income. The retail industry was the second largest employer accounting for 15 percent of those employed in the county.

Washoe County unemployment was reported for the fourth quarter of 2001 at approximately 8,700 persons, for an unemployment rate of 4.6 percent. This compares with data for the fourth quarter of 2000, which indicates approximately 5,000 people unemployed and an unemployment rate of 3.1 percent.

⁴⁰ U.S. Department of the Interior, Bureau of Land Management. Sonoma-Gerlach and Paradise-Denio Management Framework Revised Plan Amendment and Draft EIS. August 2000 (unpublished).

⁴¹ Nevada State Demographer's Office. Nevada County Population Estimates July 1, 1986 to July 1, 2000. February 27, 2001.

⁴² U.S. Department of Commerce, Bureau of Economic Analysis. Regional Economic Information System. May 6, 2002.

**TABLE 3.18.3
WASHOE COUNTY EARNINGS AND EMPLOYMENT
BY MAJOR INDUSTRY (2000)**

Industrial Sector	Earnings		Employment	
	Total (\$)	Percent of Total	Number of Jobs	Percent of Total
Agriculture	8,409,000	0.1	689	0.3
Agriculture Services	41,498,000	0.5	2,166	0.9
Mining	48,047,000	0.6	953	0.4
Construction	763,538,000	9.1	17,607	7.3
Manufacturing	675,277,000	8.0	14,870	6.2
Transportation and Public Utilities	603,810,000	7.2	13,664	5.7
Wholesale Trade	612,214,000	7.3	13,620	5.7
Retail Trade	802,718,000	9.5	36,928	15.3
Finance, Insurance, and Real Estate	741,483,000	8.8	24,212	10.1
Services	2,969,501,000	35.2	93,459	38.8
Government	1,164,634,000	13.8	22,617	9.4
Total	8,431,129,000	100.0	240,785	100.0

Note: Earnings include wages and salaries, other labor income, and proprietor income. Earnings represent the principal component of total income, which is comprised of adjustments for residence, dividends, interest, rent and transfer payments less personal contributions for social insurance.

Source: U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System, May 2002.

3.18.1.4 Churchill County

The Dixie Valley KGRA, located in Churchill County, lies within the Central Hydrographic Region (10). Churchill County encompasses approximately 3,013 square miles. The estimated population for Churchill County in 2000 was 26,247 with a population density of 8.7 persons per square mile.⁴³ Fallon, the only incorporated city in Churchill County, had an estimated population of 8,386 making up nearly 32 percent of the county's total population.

⁴³ Nevada State Demographer's Office. Nevada County Population Estimates July 1, 1986 to July 1, 2000. February 27, 2001.

**TABLE 3.18.4
CHURCHILL COUNTY EARNINGS AND EMPLOYMENT
BY MAJOR INDUSTRY (2000)**

Industrial Sector	Earnings		Employment	
	Total (\$)	Percent of Total	Number of Jobs	Percent of Total
Agriculture	6,979,000	1.8	659	4.9
Agriculture Services	N/A*	N/A*	N/A*	N/A*
Mining	770,000	0.2	60	0.4
Construction	34,943,000	8.9	757	5.6
Manufacturing	21,539,000	5.5	709	5.2
Transportation and Public Utilities	N/A*	N/A*	N/A*	N/A*
Wholesale Trade	7,421,000	1.9	330	2.4
Retail Trade	37,500,000	9.6	2,111	15.5
Finance, Insurance, and Real Estate	17,133,000	4.4	1,354	10.0
Services	104,459,000	26.7	3,996	29.4
Government	141,306,000	36.1	3,073	22.6
Total	567,304,000	100.0	13,576	100.0

*Values not available – figures not provided in source to avoid disclosure of confidential information, however the estimates for this item were included in the totals.

Note: Earnings include wages and salaries, other labor income, and proprietor income. Earnings represent the principal component of total income, which is comprised of adjustments for residence, dividends, interest, rent and transfer payments less personal contributions for social insurance.

Source: U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System, May 2002.

The total personal income reported for Churchill County in 2000 was approximately \$567 million. Total personal income includes earnings by work place, personal contributions for social insurance, adjustments for residence, dividends, interest, rent, and transfer payments. Earnings by work place were estimated at \$391.2 million, representing nearly 70 percent of the total income for the county. Table 3.18.4 shows earnings by work place and employment by major industrial sectors for Churchill County in 2000. Per capita personal income for Churchill County was estimated at \$23,615 in 2000. This per capita personal income ranked 11th in the

state making up approximately 80 percent of the state average of \$29,506 and 80 percent of the national average of \$29,469.⁴⁴

Approximately 71 percent of the county's 3,020,588 acres (2,143,755 million acres) are under Federal ownership. Federal Payments in Lieu of Taxes to the county in fiscal year 2002 amounted to approximately \$1 million.

Total employment for Churchill County in 2000 was estimated at 13,576 jobs. The government was the largest income producer generating \$141 million in income. The government made up 36 percent of the income and nearly 23 percent of employment in Churchill County. The services industry was the largest employer, making up nearly 30 percent of employment and nearly 27 percent of income.

Churchill County unemployment was reported for the fourth quarter of 2001 at 630 persons, for an unemployment rate of 7 percent. This compares with data for the fourth quarter of 2000, which indicates 690 people unemployed and an unemployment rate of 7.6 percent.

3.18.2 Environmental Impacts

3.18.2.1 Proposed Action

Direct Impacts – There are no direct impacts to issuing leases for future geothermal exploration, development, and production activities.

Indirect Impacts – Future geothermal exploration, development, production, and close-out activities in the “reasonable foreseeable development scenario” could be seen to provide moderately beneficial impacts to the county economies in the terms of jobs, income, and tax revenues. No adverse impacts are identified.

The following are the potential environmental impacts on social and economics when analyzing the “reasonably foreseeable development scenario.”

Exploration. The social and economic impacts in the exploration phase are expected to be minimal. We expect that the geothermal companies doing exploration would bring their in-house exploration scientists and technicians to do the majority of this work. After initial surveys have been completed, road building and drill pad construction could occur in order to drill temperature gradient and exploration wells. Road and drill pad construction work could be contracted out to local contractors. Some minor positive impacts could also be realized from rental of hotel rooms, meals, purchase of supplies. Employment opportunities for the local workforce are expected to be minimal during this phase.

⁴⁴ U.S. Department of Commerce, Bureau of Economic Analysis. Regional Economic Information System. May 6, 2002.

⁴⁵ U.S. Department of the Interior, Bureau of Land Management. Sonoma-Gerlach and Paradise-Denio Management Framework Revised Plan Amendment and Draft EIS. August 2000 (unpublished).

Development. Positive social and economic impacts would be greater during the development phase. During this phase, more permanent roads and drill pads would be constructed, geothermal pipelines would be laid, power plant and/or direct-use and miscellaneous support facilities would be constructed, and electric transmission lines and substations would be constructed. Geothermal companies are expected to contract out much of this work to local contractors and builders. Purchase of supplies and construction materials could also benefit local merchants. Transporting of supplies and building materials could also benefit local trucking and delivery companies. Some minor positive impacts could also be realized from hotel room rentals and meals purchases. Employment opportunities for the local workforce are expected greater than during the exploration phase; however, most of the employment opportunities are expected to be short-term/part-time.

Production. During this phase, major construction would be complete and the power plant would be producing electrical power. The geothermal company could hire several technicians and laborers to monitor power production and keep the plant operating. The positive social and economic impacts during this phase would result from the sale of electrical power and the taxes generated as a result of those sales. Each plant facility would be required to pay sales, use, and property taxes, net proceeds from mine taxes, and royalties to the Federal government which would be shared with the State. Full-time/long-term employment opportunities for the local workforce during this phase would probably to be minimal.

Close-Out. During the close-out phase, electrical power generation would terminate and the site would be abandoned. As part of the close-out phase, surface equipment and buildings would be removed, electrical transmission lines would be removed, wells would be capped and cemented closed, and surface disturbance would be re-graded, seeded, and returned to its original condition or reclaimed to BLM's satisfaction. Geothermal companies are expected to contract out much of this dismantling, re-grading, and reclamation work to local contractors. Purchase of supplies and dismantling materials could also benefit local merchants. Transporting of supplies and discarded building materials could also benefit local trucking and delivery companies. Some minor positive impacts could also be realized from hotel room rentals and meals purchases. Employment opportunities for the local workforce are expected to be similar to the development phase; however, most of the employment opportunities would probably be short-term/part-time.

3.18.2.2 No Action Alternative

Direct Impacts – There are no direct impacts to issuing leases for future geothermal exploration, development, and production activities.

Indirect Impacts – Indirect impacts from the No Action Alternative would be similar to those described in the Proposed Action; however, updated mitigation measures and stipulations would not apply using the 1982 Geothermal EA.

⁴⁶ Ibid.

⁴⁷ Ibid.

⁴⁸ Ibid.